

(12) **UK Patent Application** (19) **GB** (11) **2 185 612** (13) **A**
(43) Application published 22 Jul 1987

<p>(21) Application No 8701393</p> <p>(22) Date of filing 22 Jan 1987</p> <p>(30) Priority data</p> <p>(31) 8601550 (32) 22 Jan 1986 (33) GB</p>	<p>(51) INT CL⁴ G07F 17/32</p> <p>(52) Domestic classification (Edition I) G4V 119 AA U1S 1175 G4V</p> <p>(56) Documents cited</p> <table><tr><td>GB A 2171234</td><td>GB A 2087618</td></tr><tr><td>GB A 2165386</td><td>GB 1591001</td></tr><tr><td>GB A 2131587</td><td>GB 1583723</td></tr><tr><td>GB A 2119990</td><td>GB 1454046</td></tr><tr><td>GB A 2097570</td><td></td></tr></table> <p>(58) Field of search G4V Selected US specifications from IPC sub-classes A63F G07F</p>	GB A 2171234	GB A 2087618	GB A 2165386	GB 1591001	GB A 2131587	GB 1583723	GB A 2119990	GB 1454046	GB A 2097570	
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GB A 2097570											
<p>(71) Applicant JPM (Automatic Machines) Limited, (Incorporated in United Kingdom), Hadfield Road, Leckwith Trading Estate, Cardiff CF1 8AQ</p> <p>(72) Inventor Alan Geoffrey Parker</p> <p>(74) Agent and/or Address for Service Wynne-Jones Laine & James, Morgan Arcade Chambers, 33 St. Mary Street, Cardiff CF1 2AB</p>											

(54) **Skill with prizes machines**

(57) A skill-with-prizes machine offers challenges to players, such as questions on a video screen, which if met correctly are rewarded with a payout. Each game requires a monetary or token input to the machine, and a balance is maintained between this income and prize payouts by monitoring past performance and varying prize payouts if the balance strays too far from a norm. This can be augmented by altering the difficulty of the challenge or the time allowed to meet it.

GB 2 185 612 A

SPECIFICATION

Improvements relating to skill with prizes machines

- 5 This invention relates to skill-with-prizes machines. Such machines set the player or players challenges, such as questions projected on a video screen and answerable by pressing one of a set of answer buttons corresponding to a list of possible answers also projected on the screen. Some machines are play-
10 able just for amusement, but others offer prizes if the player meets the challenge and attains a certain skill level.

The problem then is that a clever player may repeatedly win on the machine and be awarded prizes in excess of the machine's income. The prizes may of course be limited, but to attract customers there should be the enticement of a reasonably large prize, say £10, if successful.

- 20 There have been various proposals for stabilizing prize-awarding machines and one is described in our Patent No. 2807618B. But the system described there, and others known to us, is applied to machines with a gambling element and the stabilization is arranged to alter the odds on winning. Thus, if there is a sequence of closely spaced wins, the odds on winning combinations occurring in a fruit machine, for example, lengthen. Of course, prizes can still be won, and the machine could go bankrupt or nearly
30 so, but experience has shown that this rarely if ever happens. Thus, the machine can offer fixed prizes for the various wins and pay them out if those wins occur. The stabilization provides a built-in defence.

However, with a skill machine, such an approach may be of little use. For example, if a player knows all, or nearly all, the answers, then however difficult the questions posed by a quiz machine may be, then the player is going to win consistently. The machine will then be forced to pay out more than it can afford.
40 It is the aim of this invention to alleviate such a problem.

According to the present invention there is provided a skill-with-prizes machine comprising means for monitoring the income to and prize expenditure
45 from the machine and means for maintaining a substantially constant balance therebetween by varying the prizes in response to the relationship between past wins and losses.

The balance may be weighted so that, instead of
50 general equality, the income over a period exceeds the pay-out on prizes over that period by a given percentage. This period may be of the life of the machine.

In addition to this, the output of the monitoring means may be used in determining the challenge to the player(s) in the next game or groups of games, the challenge being stiffer following a win than it would be following a loss.

Thus, in quiz machines for example, there may be
60 various "banks" of questions, each bank being of a certain grade of difficulty, and the monitoring means may then select questions from a given bank according to the state of the machine's finances. Another way, when a time limit is set to answer any question
65 or group of questions, is to shorten that limit after a

substantial payout and to lengthen it again when the prize fund has recovered.

Preferably, the machine will not indicate what prize is at stake for any particular game, although it
70 will normally have a display showing the prizes it is capable of delivering. Thus a player will not be made aware that the chances of a big prize has been temporarily removed while income builds up to make such a prize possible. But even though a large prize
75 may be temporarily unavailable, the machine will always produce at least a small prize if the player meets its challenge.

The monitoring of income and expenditure can be done in a similar manner to that described in our
80 Patent No. 2087618B. Counting of coins or tokens paid in and those paid out in prizes is readily carried out, and their comparative levels are then used to determine what prize can be paid out the next time a player wins. A succession of non-winning plays will
85 build up the prize reservoir, and the prize level can then be stepped up. Correspondingly, a prize pay-out will reduce the reservoir and cause temporary diminution of prize level.

The the stabilization of the payout is controlled in
90 accordance with the skill of the players.

CLAIMS

1. A skill-with-prizes machine comprising means
95 for monitoring the income to and prize expenditure from the machine, and means for maintaining a substantially constant balance therebetween by varying the prizes in response to the relationship between past wins and losses.

2. A machine as claimed in Claim 1, wherein the balance is weighted whereby income over a period exceeds the expenditure over that period by a given percentage.

3. A machine as claimed in Claim 2, wherein said
105 period is the life of the machine.

4. A machine as claimed in Claims 1, 2 or 3, wherein the output of the monitoring means is used in determining the challenge to the player(s) in the next game or groups of games, the challenge being
110 stiffer following a win than it would be following a loss.

5. A machine as claimed in Claim 4, wherein the stiffening of a challenge is by selection of one with a greater degree of difficulty than the player would
115 otherwise expect to meet.

6. A machine as claimed in Claim 4 or 5, wherein the stiffening of a challenge is by reduction of the time in which the player would otherwise be allowed to meet it.